

**What is claimed is:**

1           1.    A method for determining a maximum number of  
2 attempted retry operations when a read error occurs in an  
3 optical disk device, the method comprising the steps of:  
4           receiving an RF signal from a pickup of the optical  
5           disk device;  
6           detecting an envelope of the RF signal;  
7           asserting a defect signal when a level of the envelope  
8           is lower than a predetermined threshold;  
9           generating interrupt pulses during the assertion of the  
10          defect signal; and  
11          determining the maximum number of attempted retry  
12          operations according to the interrupt pulses.

1           2.    The method as claimed in claim 1, wherein the  
2 interrupt pulses are periodically generated at a  
3 predetermined time interval during the assertion of the  
4 defect signal.

1           3.    The method as claimed in claim 2, wherein the  
2 maximum number of attempted retry operations is determined  
3 according to a total number of the interrupt pulses within a  
4 read period of a data block causing the read error.

1           4.    The method as claimed in claim 3, wherein one of a  
2 first, second and third values is selected as the maximum  
3 respectively when the total number of the interrupt pulses  
4 is larger than a first threshold, between the first and  
5 second threshold, and lower than the second threshold.

1           5.    The method as claimed in claim 4, wherein the  
2   first threshold is larger than the second threshold, the  
3   first value is smaller than the second value and the second  
4   value is smaller than the third value.

1           6.    The method as claimed in claim 1, wherein the  
2   interrupt pulses are generated only upon level transitions  
3   in the defect signal.

1           7.    The method as claimed in claim 6, wherein the  
2   maximum of times the retry operation is attempted is  
3   determined according to a total length of periods between  
4   pairs of odd and even-numbered pulses, within a read period  
5   of a data block causing the read error.

1           8.    The method as claimed in claim 7, wherein one of a  
2   first, second and third values is selected as the maximum  
3   respectively when the total length of the periods is larger  
4   than a first threshold, between the first and second  
5   threshold, and lower than the second threshold.

1           9.    The method as claimed in claim 8, wherein the  
2   first threshold is larger than the second threshold, the  
3   first value is smaller than the second value and the second  
4   value is smaller than the third value.

1           10.   An apparatus for determining a maximum number of  
2   attempted retry operations when a read error occurs in an  
3   optical disk device, the apparatus comprising:

4 an RF signal processor for both receiving and  
5 amplifying an RF signal from a pickup of the  
6 optical disk device;  
7 an envelope detector for outputting an envelope of the  
8 RF signal according to the results of the RF  
9 signal processor;  
10 an defect detector for both asserting a defect signal  
11 when a level of the envelope is lower than a  
12 predetermined threshold and for generating  
13 interrupt pulses during the assertion of the  
14 defect signal, wherein the defect detector  
15 receives the output of the envelop detector; and  
16 a system controller for determining the maximum number  
17 of attempted retry operations according to the  
18 interrupt pulses, wherein the system controller  
19 receives the output of the defect detector.

1 11. The apparatus as claimed in claim 10, wherein the  
2 interrupt pulses are periodically generated at a  
3 predetermined time interval during the assertion of the  
4 defect signal and are received by the defect detector.

1 12. The apparatus as claimed in claim 11, wherein the  
2 system controller determine the maximum number of attempted  
3 retry operations according to a total number of the  
4 interrupt pulses within a read period of a data block  
5 causing the read error.

1 13. The apparatus as claimed in claim 12, wherein one  
2 of a first, second and third values is selected as the  
3 maximum respectively when the total number of the interrupt

4 pulses is larger than a first threshold, between the first  
5 and second threshold, and lower than the second threshold.

1 14. The apparatus as claimed in claim 13, wherein the  
2 first threshold is larger than the second threshold, the  
3 first value is smaller than the second value and the second  
4 value is smaller than the third value.

1 15. The apparatus as claimed in claim 10, wherein the  
2 interrupt pulses are generated only upon level transitions  
3 of the defect signal.

1 16. The apparatus as claimed in claim 15, wherein the  
2 system controller determines the maximum of times the retry  
3 operation is attempted according to a total length of  
4 periods between pairs of odd and even-numbered pulses,  
5 within a read period of a data block causing the read error.

1 17. The apparatus as claimed in claim 16, wherein one  
2 of a first, second and third values is selected as the  
3 maximum respectively when the total length of the periods is  
4 larger than a first threshold, between the first and second  
5 threshold, and lower than the second threshold.

1 18. The method as claimed in claim 17, wherein the  
2 first threshold is larger than the second threshold, the  
3 first value is smaller than the second value and the second  
4 value is smaller than the third value.